



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,113	12/19/2001	Jaime E. Ramirez-Vick	25527-0001 C1	2617
25213	7590	06/02/2004	EXAMINER	
HELLER EHRMAN WHITE & MCAULIFFE LLP			KIM, YOUNG J	
275 MIDDLEFIELD ROAD			ART UNIT	
MENLO PARK, CA 94025-3506			PAPER NUMBER	

1637

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary****Application No.**

10/029,113

**Applicant(s)**

RAMIREZ-VICK, JAIME E.

**Examiner**

Young J. Kim

**Art Unit**

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) 22-24 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office Action responds the Amendment received on March 4, 2004.

All objections and rejection hereto not reiterated are considered to be withdrawn in view of the arguments and claim amendment.

#### ***Election/Restrictions***

Newly submitted claims 22-24 directed to an invention that is independent or distinct <sup>are</sup> from the invention originally claimed for the following reasons: claims 22-24 are drawn to a patentably distinct method of recovering a ligand via use of steps and elements which are not useable together as the previously examined methods. For example, claims 22-24 employ thiodiglycol for the purpose of recovering ligands, which are drawn to patentably distinct subject matter.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 22-24 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03. Cancellation is requested.

#### ***Priority***

Applicants petition to accept unintentional delay in claiming priority under 35 U.S.C. 119(e) has been granted.

#### ***Drawings***

The drawings filed on December 19, 2001 are acceptable.

***Claim Rejections - 35 USC § 112 – Necessitated by Amendment***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is grammatically unclear. For example, said claim as amended recites the phrase, “wherein *the soft base heterofunctional spacer* is...” rendering the *italicized* term lacking in proper antecedent basis. It appears that the phrase, “soft base” should be deleted.

Claim 21 recites the limitation “said oligonucleotide.” There is insufficient antecedent basis for this limitation in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5-7, and 9-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a New Matter Rejection.

Applicants have amended the independent claims 1 and 5 to become drawn to a ligand-binding solid surface which comprises a heterobifunctional spacer further comprising a *genus of*

Art Unit: 1637

*functional group of biotinamide.* The claims as originally filed nor the specification give proper support for a heterobifunctional spacer comprising a genus of biotinamide. Rather, the specification only supports the species of heterobifunctional spacer comprising “succinimidyl-6-(biotinamido)hexanoate.” The specification nor the claims as originally filed support the genus embracing any heterobifunctional spacer comprising biotinamide derivatives, thereby not properly supporting the amendment to said claims.

***Claim Rejections - 35 USC § 102 – Necessitated by Amendment***

The present rejections are necessitated by the amendment received on March 2, 2004, amending the independent claims to become drawn to a ligand binding surface comprising a heterobifunctional spacer having a soft base selected from the group consisting of biotinamide and iodoacetyl, and a method producing said surface.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 7, 9-14, 16, 17, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by McGall et al. (U.S. Patent No. 5,412,087, issued May 2, 1995).

McGall et al. disclose a method of producing an array of oligonucleotides immobilized on a metal substrate (column 6, lines 30-32) involving the use of heterobifunctional reagents, wherein one of the reagents are succinimidyl 6-[6-(((iodoacetyl)amino)hexanoyl)amino)hexanoate] (column 15, lines 1-8).

Art Unit: 1637

Hybridization of the produce array to the target nucleic acid is also disclosed (column 16, lines 25-46).

McGall et al. disclose that although one of ordinary skill will understand that the corsslinking groups are not required elements of the invention, the crosslinking groups are preferably sufficient in length to permit thio groups on the surface, as well as biological polymers cavalemently attached to the thiol groups, to *interact freely with compounds in solution* (column 6, lines 43-47). The crosslinking reagents are disclosed as being any of aryl acetylenes, ethylene glycol oligomers containing two to ten monomer units, wherein said corsslinking groups can be attached to an array (column 6, lines 50-64).

Therefore, McGall et al. anticipate the invention as claimed.

Claims 1, 4, 5, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wybourne et al. (U.S. Patent No. 5,465,151, issued November 7, 1995).

Wybourne et al. disclose a substrate comprising a biosensor (column 2, lines 33-36) comprising a metal surface (column 16, lines 56-60), immobilized thereto succinimidyl-6-(biotinamido)hexanoate (column 28, lines 13-14).

Therefore, Wybourne et al. anticipate the invention as claimed.

### ***Claim Rejections - 35 USC § 103 – Necessitated by Amendment***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1637

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 6, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGall et al. (U.S. Patent No. 5,412,087, issued May 2, 1995) in view of Eggers et al. (U.S. Patent No. 5,532,128, issued July 2, 1996).

McGall et al. disclose a method of producing an array of oligonucleotides immobilized on a metal substrate (column 6, lines 30-32) involving the use of heterobifunctional reagents, wherein one of the reagents are succinimidyl 6-[6-(((iodoacetyl)amino)hexanoyl)amino]hexanoate] (column 15, lines 1-8).

Hybridization of the produce array to the target nucleic acid is also disclosed (column 16, lines 25-46).

McGall et al. disclose that although one of ordinary skill will understand that the crosslinking groups are not required elements of the invention, the crosslinking groups are preferably sufficient in length to permit thio groups on the surface, as well as biological polymers covalently attached to the thiol groups, to *interact freely with compounds in solution* (column 6, lines 43-47). The crosslinking reagents are disclosed as being any of aryl acetylenes, ethylene glycol oligomers containing two to ten monomer units, wherein said crosslinking groups can be attached to an array (column 6, lines 50-64).

McGall et al., while teaching that the solid support can be composed of many materials such as metals, does not explicitly teach that the metal is selected from the list of metals recited in instant claims 2, 6, 15, and 18.

Eggers et al. disclose a well-known concept of linking a thiol group to a metal substrate such as gold, platinum, titanium, etc. (column 8, lines 30-35) to create an array of probes.

Art Unit: 1637

It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to expand the teachings of McGall et al. with the teachings of Eggers et al. because by doing so, one of ordinary skill in the art would have been able to attach the heterobifunctional linker comprising thiol groups of McGall et al. to the metal substrates such as gold, platinum, titanium, etc.

As such knowledge have been well known in the art, as evidenced by Eggers et al., one of ordinary skill in the art <sup>would</sup> have had a clear expectation of success at combining the teachings of the artisans. MPEP, at 2143.02, states that the prior art can be modified or combined to reject claims as obvious as long as there is a reasonable expectation of success, thereby rendering the claims obvious over the cited references.

Therefore, for the above reasons, the invention as claimed is *prima facie* obvious over the cited references.

### ***Conclusion***

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37




Art Unit: 1637

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Inquiries*

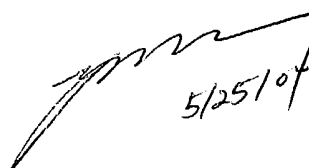
Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner can normally be reached from 8:30 a.m. to 6:00 p.m. Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessful, the Primary Examiner in charge of the prosecution, Dr. Kenneth Horlick, can be reached at (571) 272-0784. If the attempts to reach the above Examiners are unsuccessful, the Examiner's supervisor, Gary Benzion, can be reached at (571) 272-0782. Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (703) 872-9306. For Unofficial documents, faxes can be sent directly to the Examiner at (517) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-0507.

Young J. Kim  
Patent Examiner  
Art Unit 1637  
5/25/04

  
KENNETH R. HORLICK, PH.D.  
PRIMARY EXAMINER

5/27/04

yjk

  
5/25/04